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THE WATER POLLUTION CONTROL PROGRAM OF THE U.S. PUBLIC HEALTH SERVICE. 1957-1958

Public Health Service
Washington, D. C.

1958

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the Water Pollution Control Program of the

U.S. PUBLIC HEALTH SERVICE

1957-1958

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U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Public Health Service

"Water is our most important resource.
The available supply of fresh, pure water
is an absolute deadline
beyond which no community, State or Nation can ever go.
When humanity runs out of clean water
everything stops—
that is the end of the road
for man and all his activities."

Missouri Conservation Commission

PUBLIC HEALTH SERVICE PUBLICATION NO. 631

1958

Water Pollution Control Program
U. S. Public Health Service

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Details of illustrations in this document may be better studied on microfiche

Until recently, most Americans considered water an almost inexhaustible resource, as indeed it seemed to be. Now we are becoming aware that Nature deposits a limited amount of water to the United States' account in the bank of natural resources. We are alarmed to find that we have overdrawn our account in many parts of the country.

We are also beginning to realize that uncontrolled pollution is the most wasteful practice in our use of water resources. We can no longer afford this waste, for if we do not halt pollution we will not be able to meet the needs of a growing population and an expanding economy.

Every citizen has a responsibility to help conserve the Nation's water resources. This booklet shows how we have been trying to do this under the Water Pollution Control Act of 1956. I am sure its readers will agree that the Nation has made a good start, but that we must work harder to control pollution in every state and community. All of us must share in the work that needs to be done. All of us will share in the benefits of pollution control; namely, an adequate supply of good clean water for all the Nation's needs.

Foreword

a fixed supply vs. an increasing need

In the past, most people took water as much for granted as the air they breathed. Now on every hand—from municipal officials, manufacturers, conservationists, farmers, housewives, and others—come expressions of concern over water shortages. The Nation is not running out of water; there is just as much of it as there ever was. We are just using so much more of it.

Water is precipitated from the atmosphere in one form or another—rain, snow, sleet, hail, frost, or dew. It runs across the land, serving a myriad of needs, and then is drawn back into the skies, soon to fall again and repeat its life-giving cycle of precipitation and evaporation.

Each year just so much water falls on the United States and no more. For as long as records have been kept, this amount has been about 30 inches. Since precipitation remains relatively constant, it follows that the Nation's fresh water supply also is relatively fixed.

This fixed amount of precipitation averages about 4,300 billion gallons per day. Not all of this seemingly vast quantity of water is available for use, however. Seventy percent of it, or 3,100 billion gallons, is returned each day to the sky by evaporation and by the breathing and perspiring of plants, animals, and man. Neither is all of the remaining 30 percent, or 1,200 billion gallons, available for our use. A large proportion of this occurs as flood water which quickly runs off to the ocean—gone before we have a chance to use it. An increasing share of that which is left is spoiled by pollution.

It has been calculated by water supply experts that not more than 600 billion gallons per day of the water that falls on this country can be kept available for use in the Nation's lakes and streams. It is on this fixed fresh water supply that the continued growth and prosperity of the United States depends.

In 1900 we were largely a rural nation and used only 40 billion gallons of fresh water per day. Today we are predominantly urban and our domestic, municipal, industrial and agricultural fresh water use has risen to 270 billion gallons per day. And by 1980, only 22 years away, it is predicted that our fresh water needs will be 600 billion gallons per day! Thus, in little more than two decades, the daily demand for fresh water will be equal to the daily supply.

When the demand exceeds the supply, as it already has in many parts of the country, the only way needs can be met is by reusing the same water over and over. However, to be suitable for reuse the water must be of the right quality as well as in the right quantity. This requires that adequate pollution control measures be provided and maintained. More "new" water can be provided by controlling pollution than by any other means.

It is generally agreed that from now on the Nation's water needs can best be served by controlling pollution to permit the repeated reuse of the same water as it flows from city to city and from industry to industry.

Yesterday today and tomorrow

the changing problems

During the early part of the present century water pollution was one of the chief means by which the living organisms of typhoid fever and other enteric diseases were transmitted. Pollution also caused nuisance conditions, taste and odors in drinking water, and the destruction of fish and wildlife from toxic substances and lack of oxygen.

Since 1940 the problems caused by water pollution have been changing. Health agencies, while still concerned with the living organisms that cause waterborne diseases, now are becoming increasingly concerned with the health aspects of non-living contaminants from the manufacture and use of new chemical products, the tremendous increase in poulltion of all kinds, and with managing water quality so all needs can be met. These new concerns result from the Nation's explosive population growth, vast industrial expansion, amazing chemical technology, and the widespread commercial use of nuclear energy which is certain to come.

The Nation's water pollution problem is not composed of just one situation. Actually there are many special ones, the total of which make up the national problem. Among the more important are:

1. The backlog of sewage and waste treatment needs that built up during World War II and the Korean conflict, when construction materials were diverted into the war effort. This backlog is still with us and needed construction amounts to approximately $4 billion, about equally divided between cities and industries.

2. The nationwide pollution control effort is not keeping pace with the speed of population and industrial growth. Municipalities need to spend $500 million to $600 million per year for sewage treatment and industries a like amount for industrial wastes; yet, over the past 10 years they have averaged less than half these amounts.

3. Because of rapidly changing technologies, industrial wastes are becoming exceedingly complex and very little is known about many of them. Knowledge is needed on their pollutional behavior in water and on any physiological effect on animals and man. We need to know how to measure them and to treat them effectively. And we have yet to face the problems that will be caused by commercial uses of atomic energy.

4. The decided trend of population movement into huge metropolitan centers is resulting in a problem of disposing of tremendous volumes of complex wastes nearby, often to comparatively small streams. We need much more effective treatment processes, actually some that achieve 100 percent purification so that in water short areas the water may be used over and over by the same municipalities and industries, or by those immediately downstream.

Monongahela and Allegheny Rivers at Pittsburgh, Pa.

Concentration of population and industry in huge metropolitan centers creates difficult and complex waste disposal problem

•

In enjoying our high standard of living, we have become the world's largest user of water, and produce the most "used" water.
In producing half the world's manufactured goods, we produce half its industrial wastes.

5. There is a great need to develop a better public awareness of the pollution problem.

A recently completed Public Health Service inventory of sewage and industrial waste treatment facilities shows how far we are behind. Nearly 4,000 new sewage treatment plants are needed to serve more than 22 million persons and over 2,000 other projects are needed to make existing treatment works adequate for 30 million more persons. Although 98 million people are served by sewers, less than half the sewage receives adequate treatment. Data on industrial waste needs are less complete but those available show that they are probably higher than the 5,700 projects shown to be needed in a 1954 Public Health Service study.

At a time when it is using vast amounts of clean water, and seeking much more, the Nation finds itself confronted with serious problems of water pollution. We can no longer afford to heedlessly waste water by pollution; we must use it wisely and conserve it by controlling pollution. When he appointed the Advisory Committee on Water Resources Policy, President Eisenhower appraised the situation in this way: "If we are going to continue to advance agriculturally and industrially, we must make the best use of every drop of water which falls on our soil, or can be extracted from the oceans." This will require an effective and continuing national water pollution control effort by every water user. This, of course, includes every one of us.

Legislative history

the federal story

In 1948, after nearly a half century of evaluating the growing water pollution problems, the 80th Congress passed the bipartisan Water Pollution Control Act and placed its administration in the Public Health Service. Prior to this time, more than 100 bills had been introduced for consideration. The 1948 Act delineated the principle of State-Federal cooperative programs and provided a Federal role of research, technical assistance, limited authority over interstate waters, and financial aid.

In 1954 the President recommended that Congress enact permanent Federal water pollution control legislation. After two years of study and debate by both Houses, the Congress enacted Public Law 660, the Federal Water Pollution Control Act. The 1956 Act improved and extended the Federal program, adding the principle of Federal grants to municipalities to assist in building needed sewage treatment works.

Long before the 1948 Act was passed, the Public Health Service was engaged in studies of the problems of water pollution. These had their beginnings at the turn of the century when the dark shadow of waterborne disease still fell across the land. The Public Health Service Act of 1912 gave specific authority to conduct surveys and studies of water pollution, particularly as it affected the health of man. Early research and investigations provided the basis for technical services to local, State and Federal agencies that are still an essential part of the Public Health Service program.

Congressional policy

In authorizing a Federal water pollution control program, the Congress made it clear that *primary* responsibility in this field rests with the States, with the Federal Government in a supporting role. In both the 1948 and 1956 laws, it is declared to be the policy of the Congress "to recognize, preserve, and protect the primary responsibilities and rights of the States in controlling water pollution." The 1956 law adds that "nothing in this Act shall be construed as impairing or in any manner affecting any right or jurisdiction of the States with respect to the waters (including boundary waters) of such States."

The new Act further declares it to be the policy "to support and aid technical research relating to the prevention and control of water pollution, and to provide Federal technical services and financial aid to State and interstate agencies and to municipalities in connection with the prevention and control of water pollution."

Federal State and local

the teamwork approach

A basic principle of the Public Health Service is to encourage local-State-Federal teamwork as the most desirable as well as the most effective way of getting the job done. Experience has shown that the partnership effort is best in achieving common goals and in inspiring the public confidence and support so necessary to success. The present national water pollution control program attacks the huge problems confronting the Nation by a four-way sharing of responsibility.

The State has primary responsibility for controlling pollution of intrastate waters. It sets standards and enforces its regulations, conducts surveys, collects and evaluates data, and provides technical assistance to local governments and industries. Some States conduct research and a few provide financial assistance to cities and industries.

Local governments construct and operate sewage treatment plants, make surveys, provide assistance to local industries and enforce local ordinances.

Industries construct and operate treatment facilities when their wastes are not discharged to municipal sewers. They change plant operations or adopt new processes to reduce or eliminate harmful contaminants. Many industries conduct research to solve their own problems.

The Federal Government, through the Public Health Service, supplements and supports the work of the other team members by furnishing assistance of various kinds, such as consultation, technical services, research and financial aid. It carries out the limited enforcement provisions of the Federal law with respect to interstate waters.

Administering the program

The Federal Water Pollution Control Act is administered by the Surgeon General under the direction of the Secretary of Health, Education, and Welfare. Its provisions are carried out by a Water Supply and Water Pollution Control Program.

A small Program staff is maintained in Washington, D. C., to determine policy, to guide program direction, and to coordinate with other Federal agencies. Most Program personnel are assigned to the field in Regional Offices of the Department. Field staffs carry out the majority of Program activities since they are close to the problems and have established close working relationships with State, interstate and local agencies involved.

Research and related activities are carried out at the Service's Robert A. Taft Sanitary Engineering Center in Cincinnati, Ohio. Special field projects, investigations and technical assistance services are carried out by the staffs at both the Center and the Regional Offices.

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The Water Pollution Control Advisory Board

(PRESENT MEMBERSHIP)

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Surgeon General
Public Health Service
Washington, D. C.

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Executive Secretary
Water Resources Commission
Lansing, Michigan

IRWIN T. BODE
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Conservation Commission
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Sanbornville, New Hampshire

CARL D. SHOEMAKER
Conservation Consultant
National Wildlife Federation
Washington, D. C.

The nine members of the Water Pollution Control Advisory Board are appointed by the President of the United States and its Chairman is the Surgeon General of the Public Health Service. Members are selected from outstanding leaders in industry, conservation, civic affairs, and State and local government who have demonstrated an active interest in water pollution problems; none may be employees of the Federal Government.

The Advisory Board advises, consults with, and makes recommendations to the Surgeon General on policy relating to his responsibilities under the Federal Water Pollution Control Act.

Major actions of the Advisory Board include:

- *Adoption of a statement of principles* which emphasize that pollution control is necessary to preserve the Nation's waters, that the Federal Government encourage the States to fully undertake their primary responsibility, and that the Federal role be assistance to State programs.

- *Adoption of resolutions* on specific Federal program areas, such as the need for more coordination with industrial management, the need to develop increased public awareness of pollution problems, and the importance of focusing Federal assistance on problems of regional and national scope. The Board believes strongly that Federal responsibilities include national leadership of a high order.

- *Expressions of opinion* that grants for construction of sewage treatment works are markedly stimulatory, that the Surgeon General be responsible for waste disposal aspects of all public works programs to improve the country's economy, and that financial incentives, such as rapid tax amortization, be provided to stimulate waste treatment construction by industry.

At the President's request, the Board transmitted to him a Report of Progress.

Collecting necessary information

basic data

"Basic data" are to water pollution what vital statistics are to health and what bookkeeping and inventories are to business. In pollution control, basic data mean the necessary information on the sources, kinds and amounts of pollution; the causes and effects of pollution; the present and future needed uses of waters; the kinds, costs and effectiveness of treatment facilities; the costs and benefits associated with pollution control; and similar engineering, scientific and economic information. Such basic data are the stone and mortar needed to build a solid foundation to support an effective, well-planned and *continuing* national water poilution control program.

The lack of such necessary information on the Nation's waters has been of serious concern to the Federal water resources study commissions and committees established by the Congress and the Executive Branch. The first major recommendation of the 1955 Presidential Advisory Committee on Water Resources Policy was that the present Federal basic data program be tripled over the next five years. This concern was also strongly expressed at the Congressional hearings on the bill which became the 1956 Federal Water Pollution Control Act. Consequently, one of its provisions called for collecting and evaluating necessary information on water pollution and related data.

The Public Health Service has under way a long-range basic data program in which State and local agencies are active participants, including:

1. A national network of sampling stations (50 thus far) on interstate streams to measure water quality to show where it is improving or deteriorating. Planning is for 200 more interstate stations to be supplemented by several hundred stations on intrastate streams operated by State and local agencies.

2. A completed inventory of sewage and industrial waste treatment facilities in the United States as of January 1, 1958, to be kept up to date and republished every 5 years.

3. A completed inventory of water supply facilities in communities of 25,000 and over (as of January 1, 1958), and one for those under 25,000 nearly complete. These are to be kept up to date and republished every 2 and 5 years respectively.

4. Contract awards data on construction of water, sewers and sewage treatment facilities, compiled and published annually to show progress in meeting the Nation's needs.

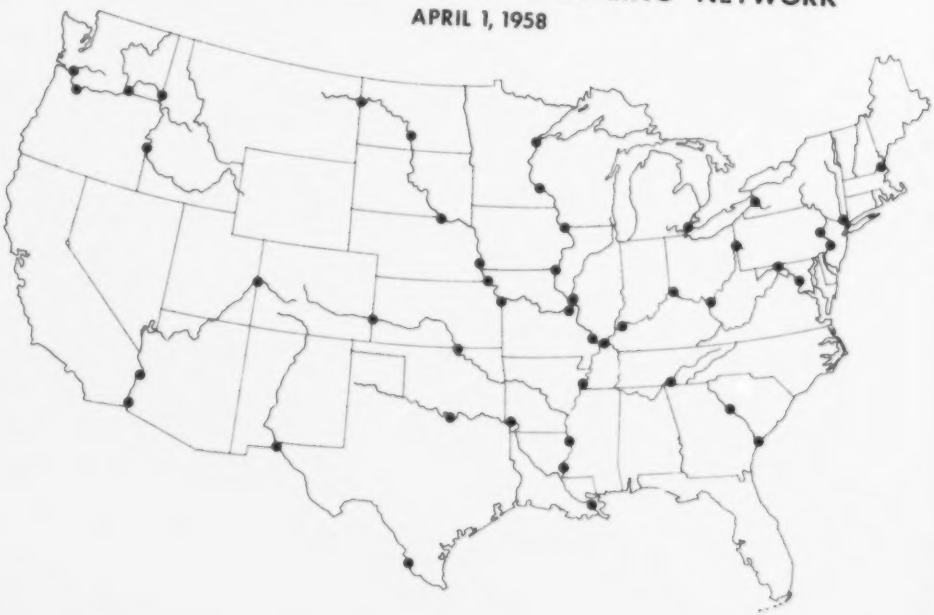
5. Studies in the area of economics to determine reliable ways of evaluating what pollution is costing local areas, States, regions and the Nation, and the costs which can be economically justified in its control.

Other basic data and necessary information related to water supply and water pollution control are collected, evaluated and published. All basic data are being recorded by modern machine tabulating methods to be quickly available for special purposes when requested by anyone concerned with the country's water resources.

"An orderly use and control of water resources requires a background of physical facts, understanding, and accumulated experience." Presidential Advisory Board on Water Resources Policy.

NATIONAL WATER QUALITY SAMPLING NETWORK

APRIL 1, 1958



PHS national water quality basic data network sampling stations.

Every successful business keeps a record of its assets and liabilities. Basic data being processed on modern machines.

Helping to solve difficult problems

technical assistance

One of the most helpful services the Public Health Service provides to State, interstate and local agencies is technical assistance. Many States have municipal and industrial waste problems of an unusual or difficult nature on which they request assistance from the Public Health Service. These problems do not occur often enough in any one State to justify its maintaining the special skills and equipment needed, but occur frequently enough across the country to be a deterrent to national water pollution control. Consequently, technical assistance is a major activity in the Federal program.

This assistance is extended to every State in response to hundreds of requests annually, and covers a wide range of activities. These include full-scale river studies, evaluation of laboratory operations, evaluation of new waste treatment

Garrison Dam, Riverdale, North Dakota

The Public Health Service provides technical services on the water supply and pollution control aspects of Federal water resources development projects.

processes, and such specialized investigations as oil seepage on the Pacific Coast. These services are provided by scientists from the Service's Sanitary Engineering Center and by specialists on the staffs of Regional Offices.

With increased appropriations and the help from Federal program grants, more and more States are acquiring the technical staffs and equipment needed to find answers to critical local problems. As a result, the Public Health Service is now able to divert more of its technical resources from problems of individual States to those having interstate, regional or national importance.

The brine pollution problem in the Southwest caused by natural salt deposits and by oil field operations is such a regional problem. It seriously affects the major water resources of an already water-short area. To assist the States and local communities with this regional problem, the Public Health Service is carrying out a Water Quality Conservation Project in the Arkansas-Red River Basins. The ultimate goal of this intensive study is to develop a plan for eliminating or controlling the brine pollution, thus upgrading the water resource to support greater development of one of America's major regions. Other problems of regional or national seriousness that require intensive study are acid drainage from coal mines, widespread use of the new synthetic "economic poisons," and radioactive waste disposal.

training

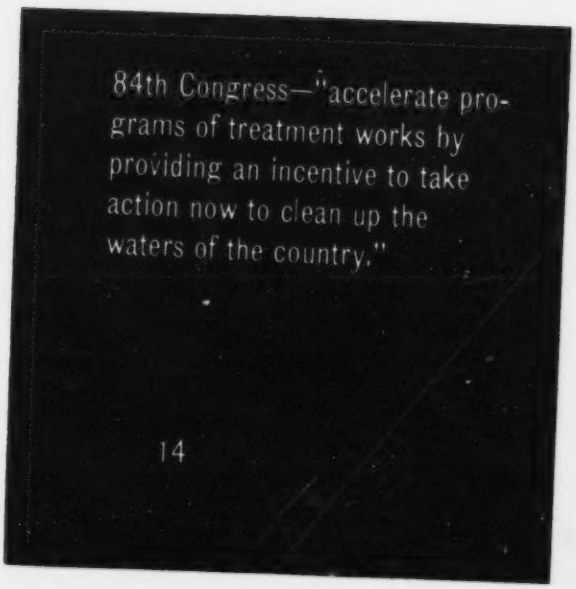
A very important Federal service is that of giving advanced training for engineers, chemists and other scientists from Federal and State agencies, municipalities and industries. Short, intensive laboratory and classroom courses are given at the Sanitary Engineering Center, and seminars and conferences on major subjects of interest are held.

- Major emphasis is being placed on special problems of regional and national importance. Cooperative studies are made with Federal, State, interstate and local agencies.

Building to clean up the Nation's streams

construction grants

The Federal Water Pollution Control Act authorizes grants to State, interstate, municipal or intermunicipal agencies to assist in meeting the costs of building sewage treatment plants. The House Committee on Public Works believed the need for such Federal financial assistance had been clearly demonstrated during the public hearings held before the Act was passed. Individual grants cannot exceed $250,000 or 30 percent of the estimated project cost, whichever is smaller. Annual appropriations of $50 million are authorized up to a grand total of $500 million. For fiscal years 1957 and 1958, a total of $95 million was appropriated.


84th Congress—"accelerate programs of treatment works by providing an incentive to take action now to clean up the waters of the country."
14

CONSTRUCTION PROGRESS
June 30, 1958

Projects approved	1,038
Projects under construction	507
Projects completed	149
Local funds	$356,500,000
Federal funds	$85,300,000
Ratio local to federal funds	4:1

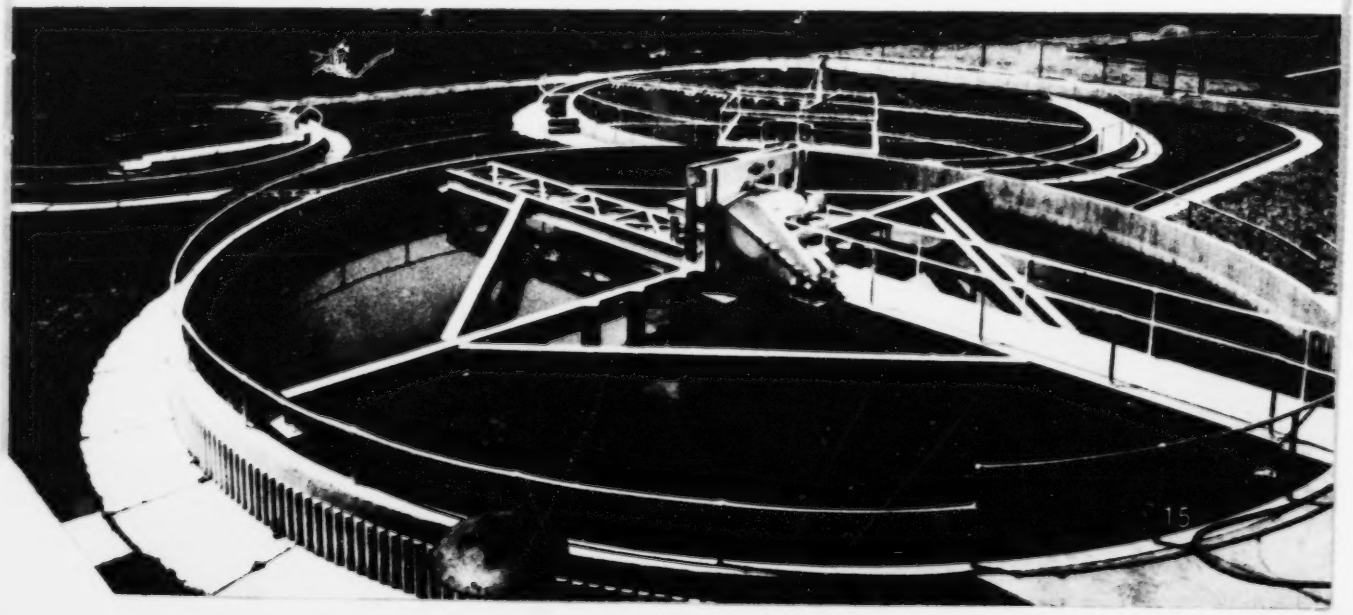
The first 947 projects approved for Federal construction grants are being evaluated. These projects will provide adequate treatment for municipal wastes equivalent to that from a population of 15 million, or more than the combined 1950 populations of New York City, Chicago, New Orleans, Philadelphia, and Atlanta. They will reduce municipal pollution in about 11,400 miles of streams to a level acceptable to State agencies for the areas involved. In addition, many miles of lake and ocean shores will be similarly improved.

Nearly 80 percent of these 947 projects involve construction of new sewage treatment works. Their completion will mark the first time that 523 communities have ever been served by treatment facilities and in 234 other communities existing inadequate plants will be completely replaced by new ones. The remaining 190 projects involve necessary improvements to existing sewage treatment facilities.

Valuable basic data on sewage treatment works design, plant operation and maintenance, and construction costs are being obtained. These will help to improve present practices. Sewage treatment plant financing data are also being evaluated and consultative services provided to communities experiencing financing difficulties.

The stimulating effect of the Federal construction grants program is shown in part by contracts awarded for municipal sewage treatment plant construction. During the five year period 1952–1956 preceding the grant program, contract awards for sewage plant construction averaged $250 million per year. In 1957, the first full year under the grant program, contract awards totaled $351 million, an increase of $101 million. While the total is less than the $500-600 million construction needed annually, the increase is most encouraging.

Newly constructed sewage treatment works serving Loveland, Colorado.



Seeking new answers

research

Research is one of the most important areas in which a Federal agency can assist in a national program. The Public Health Service is placing major emphasis on research in investigations of water pollution carried out at its modern Robert A. Taft Sanitary Engineering Center laboratories in Cincinnati.

The need for water pollution research is great. Pollution problems resulting from population growth, industrial expansion and technological changes have multiplied much faster than solutions. The backlog of unsolved problems poses a serious threat to the orderly, efficient conservation and development of the country's water resources. As in medicine or industry or agriculture, the needed answers must come from scientific research.

The new membrane filter procedure developed by Pubic Health Service has greatly speeded up bacteriological examinations of water.

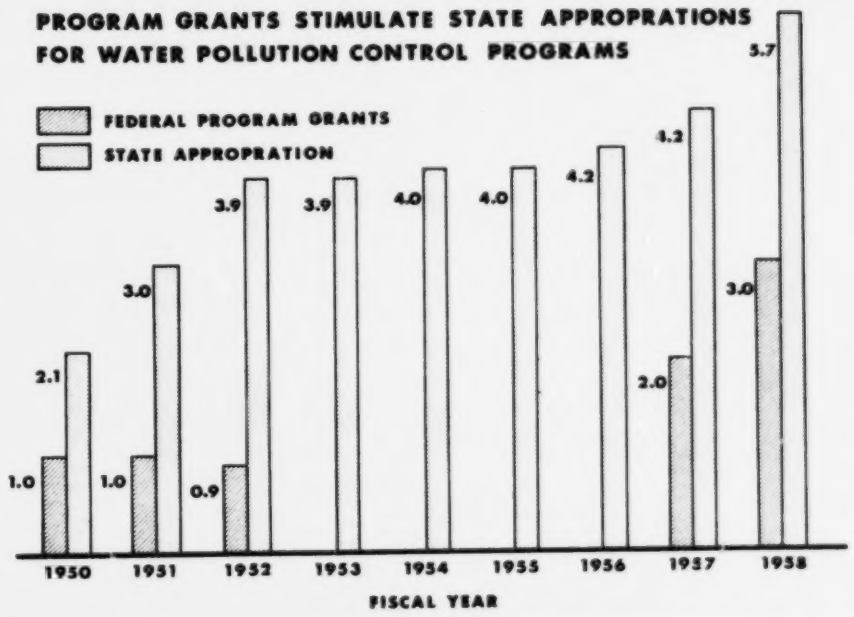
Inoculating fertile hen eggs in a study of the role of viruses in polluted water.

Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio, where the Public Health Service conducts research into a wide range of water pollution problems.

• Engineering chemistry physics microbiology aquaticbiology epidemiology toxicology.

• More knowledge is needed on the ability of present day water and waste treatment plants to cope with increased and new kinds of pollution.

Assisting the State programs



● Federal program grants assist States and interstate agencies to expand and improve their water pollution control programs.

program grants

Many very difficult pollution problems have been imposed on the States in recent years by the Nation's rapid population and industrial growth. Some States have been able to expand programs to meet growing needs but others lack adequate resources. In 1957, 25 States and Territories had appropriations of less than $50,000 and 10 were under $20,000. One State had no appropriation at all for water pollution control.

To assist the State and interstate agencies to establish and maintain adequate pollution control programs, the 1956 Federal Act provides for grants to help meet the costs. Annual appropriations of $3 million are authorized for the limited period of 1957–1961. Program grants are not intended to replace State funds; instead, States are required to pay from one-third to two-thirds of the costs of their expanded programs. The Federal grants demonstrate to the States what can be done with greater support and help stimulate higher State appropriations.

State and interstate water pollution control agencies have used program grants effectively for employing needed technical persons, for purchasing special laboratory and field study equipment and in some cases, to initiate research. Effective use of grant funds has also provided for more pollution surveys, expanded research programs, accelerated public information activities, and more aggressive enforcement of State laws.

Program grants are proving to be an excellent water pollution control tool. Nationwide pollution control will be achieved only as fast as the responsible State and interstate agencies can prevail on and assist cities and industries to provide the needed prevention and control measures.

Interstate enforcement

Where pollution of interstate waters endangers the health or welfare of persons in a State other than the one in which the pollution originates, the Surgeon General and the Secretary of Health, Education, and Welfare are empowered to take action to enforce its control. Briefly, the procedure calls for three steps: (1) a conference with the State and interstate agencies involved, (2) a public hearing before a board appointed by the Secretary, and (3) Federal court action.

Each step is taken only if the previous step has not been effective. The formal conference has been very effective and 10 have been held thus far. These involved the Big Blue River, Missouri River (4 areas), Potomac River, Mississippi River, Animas River, Lower Columbia River and the Bear River. One public hearing on the interstate pollution of the Corney Creek Drainage System was held. In all instances, agreements have been reached, including schedules for building remedial works that will cost over $400 million.

Regional Offices are maintaining a continuing observation of interstate pollution situations. To date, 153 actual or potential problem areas have been identified and data on their status are being compiled.

Public hearing on interstate pollution of the Corney Creek drainage basin (Arkansas-Louisiana).

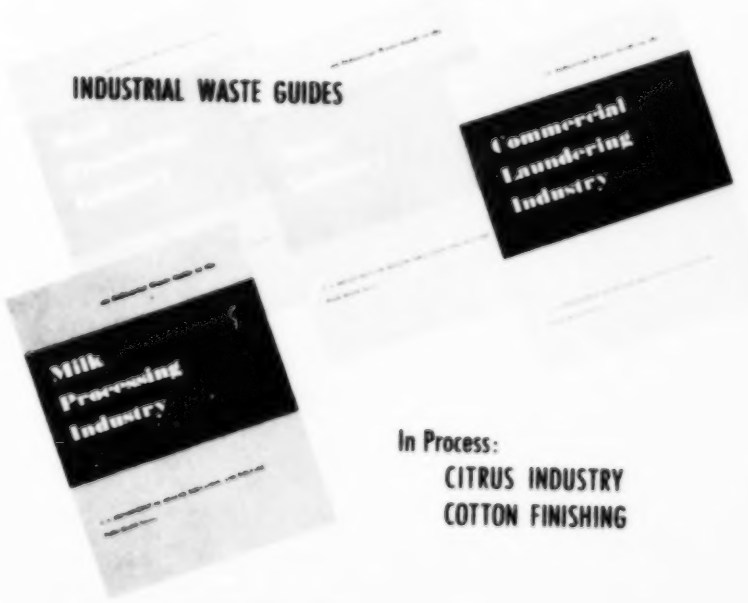
Working with industry

National Technical Task Committee on Industrial Wastes

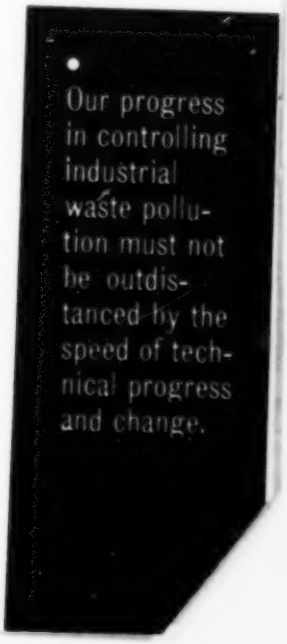
Observing the effective teamwork between industries in related fields, the Surgeon General in 1950 invited representatives of major industrial groups to meet with him to form a committee on industrial wastes. As a result the National Technical Task Committee on Industrial Wastes was formed. Its members work together and with the Federal Government to solve problems caused by industrial waste pollution. The Secretariat for the Committee is provided by the Public Health Service.

The Task Committee is organized into four Task Groups—Food Industries, Mineral Products, Chemical Processing, and General Industries. It has set for itself nine functions which deal with such major activities as research, improved technical relations between industry and regulatory agencies, practical methods for reducing stream pollution by industrial wastes, uniform methods for measuring and evaluating industrial wastes, financial assistance, and training.

The Task Committee is now composed of 62 members and alternates, representing 32 of America's major industries. It has achieved significant progress since its organization. Its activities include issuance of a Quarterly Newsletter, preparation and publication of Industrial Waste Guides, promotion of industrial waste research, establishment of a punchcard system for disseminating information on current technical literature, issuance of a report on municipal-industrial waste treatment problems, provision of training for industrial personnel, establishment of a speaker's bureau, and other related activities.



In Process:
CITRUS INDUSTRY
COTTON FINISHING


Our progress in controlling industrial waste pollution must not be outdistanced by the speed of technical progress and change.

Inter-Agency Committee on Water Resources

As a member of this Committee, the Department of Health, Education, and Welfare coordinates its activities in water pollution control and water supply planning with the water resources plans and projects of other Federal agencies. It acts as liaison between these Federal agencies and State, interstate, and local water supply and water pollution control agencies. In addition to the parent Committee, five field committees have been established—Columbia Basin Inter-Agency Committee, Missouri Basin Inter-Agency Committee, Arkansas-White-Red Basins Inter-Agency Committee, Pacific Southwest Inter-Agency Committee and Northeast Resources Committee. The substantia planning, investigating and reporting activities required by the Department's responsibilities are carried out by the Public Health Service.

The Service also provides technical services on a reimbursable basis to all members of the Inter-Agency Committee and to other Federal agencies on matters of water supply and water pollution control. A total of 32 reimbursable projects are in progress and involve such services as laboratory investigations, bio-assays, toxicity studies and other research of a wide variety, and full-scale river surveys.

International commissions

International Joint Commission

The Public Health Service provides technical services for the International Joint Commission (United States and Canada) under guidance of an Advisory Board on Control of Pollution of Boundary Waters. The Commission was provided for in the 1909 treaty entered into by the United States and Great Britain. The Service carries out an active field program aimed at attaining the boundary water quality objectives adopted by the Commission in 1950. Field units are maintained at Detroit and Buffalo.

International Boundary and Water Commission

This organization was established by treaty between the United States and Mexico in 1889 to handle engineering matters involving their common border. The Public Health Service provides technical services for the U. S. Section and has worked with the Mexican Section on a number of problems involving sanitation of international waters.

Facts for the citizen

what we must afford

Too often the yardstick used to measure the need for water pollution control is the costs and not the benefits. Usually this is because many people have a misconception that sewage treatment costs too much and only benefits the other fellow downstream. So, pollution control also involves a problem of people, in addition to the problems of engineering, research and planning.

In addition to the many benefits from pollution control to health, industry, recreation, agriculture, and conservation of fish and wildlife, there is an overall benefit to the national welfare that every citizen shares. The United States cannot continue its social and economic growth, high standard of living, and world leadership without an ample supply of clean water. To help provide the Nation with this vital supply, everyone must do his share to clean up pollution. The things citizens do to keep the Nation strong, directly benefit everyone.

Sewers and sewage treatment are the cheapest of all the public utilities. They cost less over the years than any other public service. Without sewers (and sewage treatment, for pollution must be controlled) the household would have to give up its kitchen sink, automatic laundry, multiple bathrooms and garbage disposal. If it became necessary for people to give up their public utilities one by one, the sewers and sewage treatment plants would be the last to go in most cases.

There are few products or services today that can boast of costing only a nickel, but sewage treatment for the average family still costs less than five cents per day. The cost varies with individual communities but for the country as a whole, this is the average. Five cents per family per day is less than $20 for a whole year. This is a very modest price to pay for protecting our health and keeping the Nation's most important natural resource clean and usable.

Public Health Service data, supported by State and interstate water pollution data, indicate that to catch up with the problem and to meet needs of the next few years, the cities of the country must spend from $500 million to $600 million annually. Up until now, however, they have averaged only about $250 million.

It becomes apparent that more cities must do their share in protecting and preserving the Nation's waters in order to double the present effort. Data on what must be spent to control industrial waste pollution are less complete but those available point to a need about equal to that of municipal wastes. What we must afford, then, is about $1 billion each year for adequate treatment of our municipal and industrial wastes.

—what we cannot afford is *not* to treat our wastes.

The CHALLENGE of WATER POLLUTION MUST BE MET if we are to continue our social and economic progress.

Our ever increasing use of water for all purposes places a tremendous burden on our water resources.

Domestic

DRINKING
COOKING
LAUNDERING
BATHING
AIR-CONDITIONING
GARDENING

Industrial

PRODUCING
PROCESSING
COOLING
POWER
SANITARY

Fish AND Wildlife

GAME FISH
COMMERCIAL FISH
SHELLFISH
ANIMALS
BIRDS

Recreation

SWIMMING
SKIING
BOATING
PICNICKING
CAMPING

Agricultural

STOCK WATERING AND IRRIGATION

Regional Offices of
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

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Charlottesville, Virginia

Region IV—Atlanta
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Atlanta 23, Georgia

Region V—Chicago
69 W. Washington Street
Chicago 2, Illinois

Region VI—Kansas City
911 Walnut Street
Kansas City 6, Missouri

Region VII—Dallas
114 Commerce Street
Dallas 2, Texas

Region VIII—Denver
19th and Stout Streets
Denver 2, Colorado

Region IX—San Francisco
447 Federal Office Building
Civic Center
San Francisco 2, California

ON PROGRESS

In this era of rapidly advancing science and technology, we must reckon with the limitations of our environment while pursuing ever-higher standards of living. In striving for the comforts of a "push-button" existence, we must cope with the environmental consequences of our progress.

Water, air, and food have constituted the basic elements of our physical environment. Thus far in history, water has consistently been the dominant element in man's struggle to improve his way of life.

Today the growth of population and industry is creating new and extremely complex by-product wastes, much of which pollute the Nation's water resource. Improved remedial measures must be devised and maintained in order to protect the quality and quantity of this strategic natural resource so necessary for the Nation's continued growth and development.

M. D. Hollis

M. D. Hollis

Assistant Surgeon General
Chief Engineer

THE HUMAN SIDE

In addition to the many technical difficulties involved in solving the Nation's water pollution problems, there are human difficulties also that must be recognized. Indeed, the chief difficulty often seems to be that so many of us have had so much water for so long for so low a cost.

There is just as much water as there ever was but we are sharing it with many more people and much more industry. As a result, the time has come when we must turn our attention to decreasing waste, increasing efficiency of use and, above all, to controlling pollution. Since each of us is a water user and has a stake in the Nation's future, all of us have a responsibility to see that this all-important job is well done.

G. E. McCallum, Chief

Gordon E. McCallum

Water Supply and Water
Pollution Control Program

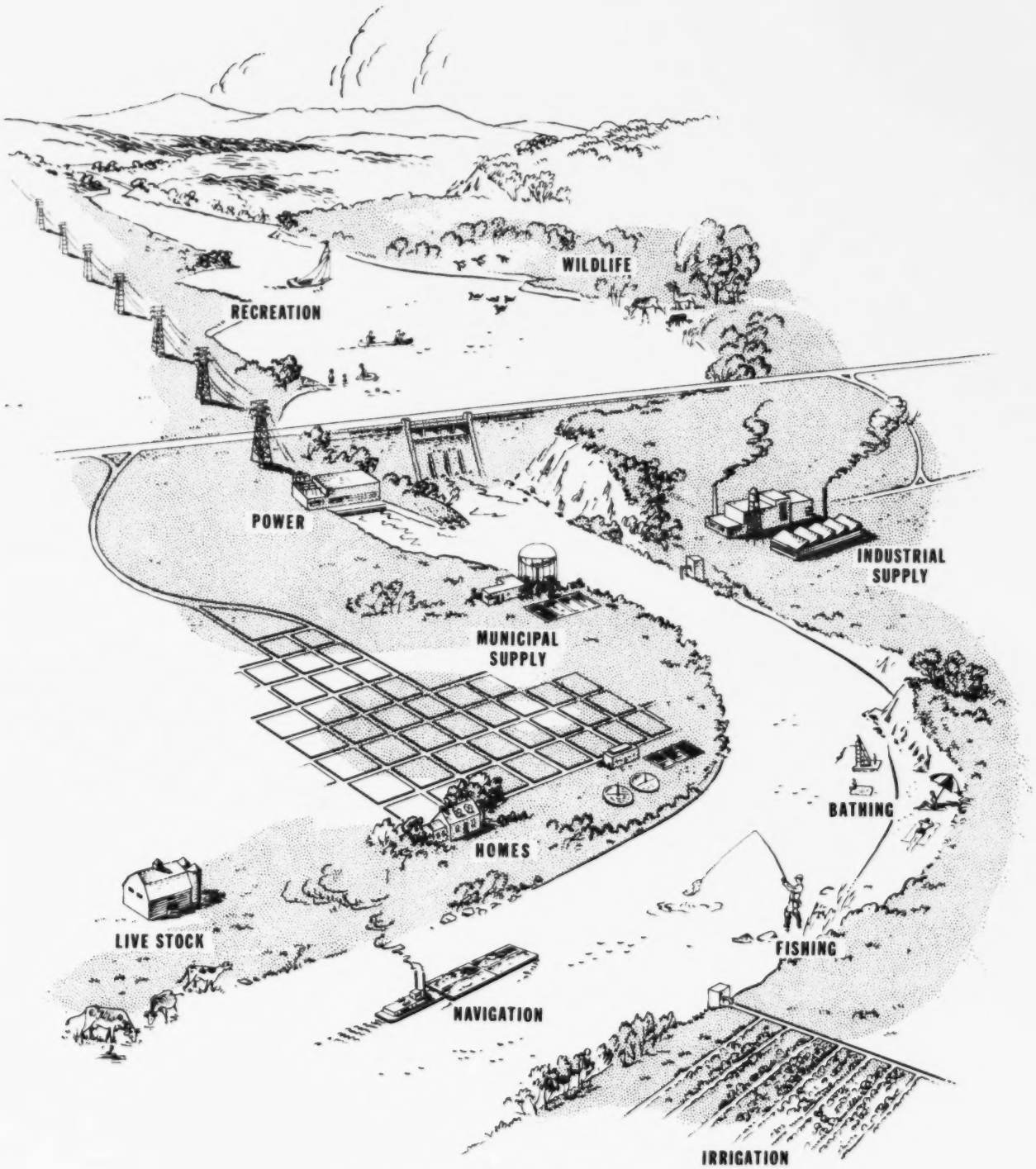
• What is the worth of clean, pure water . . .

"The people will drink the water,
use it on the land to grow crops,
feel the destructive power of uncontrolled floods,
learn to use water more intelligently
to avoid destruction of the land.
They will transport their bulk cargoes
on the bosoms of streams,
perform a multiplicity of tasks with the aid
of electric power generated by falling waters,
utilize water in their industrial processes,
resent its pollution,
and enjoy the fishing, boating, swimming,
and other forms of recreation offered by clean waters
of lakes, reservoirs, ponds, and streams.

"So it is the people that a Nation's water
resources policy must be designed to serve.
In a democracy such a policy is simply the way
in which the people decide,
through their local, State, and Federal governments,
to utilize water for all these purposes."

From the Introduction to
A Water Policy for the American People

U. S. GOVERNMENT PRINTING OFFICE: 1958 O—484377



Primary Water Uses

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1957-1958

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